

In the Claims:

Claims 1 to 35 (Canceled).

1 36. (Currently amended) An aircraft wing construction
2 arrangement comprising:

3 an aircraft lifting wing ~~that is~~ bounded by a leading
4 edge, a trailing edge and a wingtip edge, ~~and that wherein~~
5 said wingtip edge is an outward end edge of said lifting
6 wing, which outward end edge extends from said leading edge
7 to said trailing edge, and wherein said lifting wing is
8 elastically deformable in a bending direction and in a
9 torsional direction about an elastic axis of said lifting
10 wing extending in a span direction outwardly to said
11 wingtip edge between said leading edge and said trailing
12 edge;

13 a control surface that is pivotably connected to said
14 lifting wing so as to be pivotable about a ~~[[pivot]]~~
15 rotation axis extending non-perpendicular to said elastic
16 axis and non-parallel to said wingtip edge, wherein said
17 control surface is located offset by a spacing distance in
18 front of said elastic axis, ~~[[and]]~~ wherein a pivoting
19 deflection of said control surface about said ~~[[pivot]]~~
20 rotation axis is adapted to exert an aerodynamic force that
21 elastically deforms said lifting wing in said bending
22 direction and said torsional direction about said elastic
23 axis and thereby varies an induced drag of said lifting

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24 wing during flight of said aircraft, and wherein said
25 control surface is located inwardly from and does not
26 extend outwardly beyond a line extending along said wingtip
27 edge of said lifting wing in all pivoting deflection
28 positions of said control surface about said rotation axis;
29 and

30 a control and/or regulating regulation arrangement
31 adapted to generate an actuating signal according to which
32 said pivoting deflection of said control surface is
33 actuated so as to vary said induced drag toward
34 minimization of said induced drag.

1 37. (Currently amended) The aircraft wing construction
2 arrangement according to claim 36, wherein said [[pivot]]
3 rotation axis extends parallel to said elastic axis, and in
4 front of said elastic axis.

1 38. (Currently amended) The aircraft wing construction
2 arrangement according to claim 36, wherein said [[pivot]]
3 rotation axis is entirely in front of said elastic axis.

1 39. (Currently amended) The aircraft wing construction
2 arrangement according to claim 38, wherein said [[pivot]]
3 rotation axis extends on a line that is non-intersecting
4 with said elastic axis.

1 40. (Currently amended) The aircraft wing construction
2 arrangement according to claim 36, wherein said ~~[[pivot]]~~
3 rotation axis is entirely in front of said leading edge.

1 41. (Currently amended) The aircraft wing construction
2 arrangement according to claim 36, wherein said control
3 surface is entirely in front of said leading edge.

Claims 42 and 43 (Canceled).

1 44. (Currently amended) The aircraft wing construction
2 arrangement according to ~~claim 43,~~ claim 36, wherein said
3 control surface extends entirely behind and does not extend
4 in front of said leading edge.

1 45. (Currently amended) The aircraft wing construction
2 arrangement according to claim 36, wherein said control
3 and/or regulation arrangement is adapted to generate said
4 actuating signal so as to achieve an elliptical
5 distribution of lift over said lifting wing.

1 46. (Currently amended) The aircraft wing construction
2 arrangement according to claim 36, wherein said control
3 and/or regulation arrangement includes a measurement unit
4 adapted to measure an actual elastic deformation of said
5 lifting wing.

1 47. (Currently amended) The aircraft wing construction
2 arrangement according to claim 36, wherein said control
3 and/or regulation arrangement is a regulation arrangement
4 including a measurement unit adapted to measure an actual
5 elastic deformation of said lifting wing and to produce
6 corresponding measured data, a storage unit that stores
7 desired nominal values representing a desired nominal
8 deformation of said lifting wing prescribed for given
9 aircraft load and aircraft flight conditions, and a
10 comparison unit adapted to compare said measured data with
11 said desired nominal values and to output said actuating
12 signal dependent thereon.

1 48. (Currently amended) The aircraft wing construction
2 arrangement according to claim 36, wherein said control
3 and/or regulation arrangement is a control arrangement
4 comprising a storage unit that stores desired nominal
5 values, an input connected and adapted to receive aircraft
6 load data and aircraft flight condition data, and an output
7 adapted to output said actuating signal dependent on said
8 desired nominal values, said aircraft load data, and said
9 aircraft flight condition data.

1 49. (Withdrawn - currently amended) A method of varying said
2 induced drag of said lifting wing in said aircraft wing
3 construction arrangement according to claim 36, said method
4 comprising using said control surface and said control

5 and/or ~~regulating~~ regulation arrangement to carry out the
6 steps:

- 7 a) storing desired nominal values;
8 b) performing measurements and/or calculations to acquire
9 aircraft load data and aircraft flight condition data;
10 c) producing a control surface actuating signal in
11 consideration of and dependent on said desired nominal
12 values, said aircraft load data and said aircraft
13 flight condition data; and
14 d) pivotally deflecting said control surface about said
15 ~~[[pivot]]~~ rotation axis in accordance with said
16 control surface actuating signal, so that said control
17 surface exerts an aerodynamic force that elastically
18 deforms said lifting wing so as to reduce said induced
19 drag toward a minimum for a given aircraft load and a
20 given aircraft flight condition.

1 50. (Withdrawn) The method according to claim 49, wherein said
2 desired nominal values represent a desired nominal
3 deformation of said lifting wing prescribed for said given
4 aircraft load and said given aircraft flight condition, and
5 further comprising measuring an actual elastic deformation
6 of said lifting wing, and producing corresponding measured
7 data further comprising comparing said measured data with
8 said desired nominal values, wherein said producing of said
9 control surface actuating signal is performed in
10 consideration of and dependent on a comparison result of

11 said comparing, and further comprising repeating said steps
12 of said measuring of said actual elastic deformation, said
13 producing of said measured data, said comparing, said
14 producing of said control surface actuating signal, and
15 said deflecting of said control surface until said measured
16 data match said desired nominal values.

1 51. (New) The aircraft wing arrangement according to claim 36,
2 wherein said control surface is not pivotable about any
3 axis parallel to said wingtip edge, and said control
4 surface is not pivotable about any axis perpendicular to
5 said elastic axis.

1 52. (New) An aircraft wing arrangement comprising:

2 an aircraft lifting wing that is bounded by a leading
3 edge, a trailing edge and a wingtip edge, and that is
4 elastically deformable in a bending direction and in a
5 torsional direction about an elastic axis of said lifting
6 wing extending in a span direction outwardly to said
7 wingtip edge between said leading edge and said trailing
8 edge;

9 a control surface that is pivotably connected to said
10 lifting wing so as to be pivotable about a rotation axis
11 extending non-perpendicular to said elastic axis and
12 non-parallel to said wingtip edge, wherein said control
13 surface is located offset by a spacing distance in front of
14 said elastic axis, and wherein a pivoting deflection of

said control surface about said rotation axis is adapted to exert an aerodynamic force that elastically deforms said lifting wing in said bending direction and said torsional direction about said elastic axis and thereby varies an induced drag of said lifting wing during flight of said aircraft; and

a control and/or regulation arrangement adapted to generate an actuating signal according to which said pivoting deflection of said control surface is actuated so as to influence an actual elastic deformation of said lifting wing to vary said induced drag toward minimization of said induced drag, and wherein said control and/or regulation arrangement includes a measurement unit arranged and adapted to measure said actual elastic deformation of said lifting wing.

53. (New) The aircraft wing arrangement according to claim 52, wherein said control surface is not pivotable about any axis parallel to said wingtip edge, and said control surface is not pivotable about any axis perpendicular to said elastic axis.

54. (New) The aircraft wing arrangement according to claim 52, wherein said measurement unit comprises an optical measuring unit arranged and adapted to optically measure said actual elastic deformation of said lifting wing.

1 55. (New) The aircraft wing arrangement according to claim 52,
2 wherein said measurement unit is further adapted to produce
3 measured data corresponding to said actual elastic
4 deformation of said lifting wing, and said control and/or
5 regulation arrangement is a regulation arrangement that
6 further comprises a storage unit that stores desired
7 nominal values representing a desired nominal deformation
8 of said lifting wing prescribed for given aircraft load and
9 aircraft flight conditions, and a comparison unit adapted
10 to compare said measured data with said desired nominal
11 values and to output said actuating signal dependent
12 thereon.

[RESPONSE CONTINUES ON NEXT PAGE]